

POLYAKOV, V. I.

PHASE I BOOK EXPLOITATION

SOV/5601

Akademiya stroitel'stva i arkhitektury SSSR. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu

Stroitel'no-montazhnyye krany; spravochnoye posobiye (Construction Erection Cranes; a Manual) 2d ed. Moscow, Gosstroyizdat, 1960. 411 p. Errata slip inserted. 30,000 copies printed.

Scientific Ed.: S. P. Yepifanov, Candidate of Technical Sciences; Ed. of Publishing House: I. L. Kromoshch; Tech. Ed.: N. I. Rudakova.

PURPOSE: This manual is intended for technical personnel of design offices and building organizations concerned with the overall mechanization of construction erection operations.

COVERAGE: The manual contains a brief description of designs of cranes used in erection work and data on cranes, including purposes, specifications and functional diagrams, reference data

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Construction Erection Cranes; a Manual

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on performance, composition of crews, required labor consumption, the cost of mounting and dismounting, and the arrangement of tracks. Also contained in the book are data on standard winches, anchors, and ropes, graphs on the cost of the crane operation per shift, basic considerations in the selection of cranes, and the methods for determining performance. The Foreword and Part I of the manual were written jointly by V. I. Polyakov, Candidate of Technical Sciences, and V. A. Solov'yev, Engineer. Parts II and III were written by Polyakov, Solov'yev, and A. N. Bogatov, Engineer. Ch. 4, Section 2, of Part I was written by S. P. Yepifanov, Candidate of Technical Sciences. Ch. I, Sections 1 and 3, and Ch. III of Part I and the tables of means of transportation and graphic data for Parts I and III (Chs. 2, 4, 6, and 7) were compiled by Solov'yev. Ch. I, Section 2, of Part I, the tables of the technical characteristics of cranes, the characteristic of tracks (together with Yu. A. Borisenko), and the graphic material for Parts II (entirely) and III (Chs. 1, 3, and 5) were compiled by Bogatov. The portion of Part I dealing with

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AVAILABLE: Library of Congress

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JP/pw/ec
11-2-61

S/100/60/000/003/001/003
A053/A026

AUTHORS: Ivanov, V.A., Engineer; Polyakov, V.I., Candidate of Technical Sciences

TITLE: What Cranes Are Required by Builders

PERIODICAL: Mekhanizatsiya Stroitel'stva, 1960, No. 3, pp. 3 - 8

TEXT: The article gives a survey of the crane situation in the USSR in reference to the building trade and its requirements, also stating to what extent these are complied with in regard to type, capacity, quality and availability. About 80 - 85% of the existing stock of cranes, viz. 21,000, are 1 - 2 ton tower cranes, therefore unsuitable for mass construction of large-panel and large unit houses. Ten to 12% of the stock are 3 - 5 ton cranes of obsolete design. There is a small number of caterpillar cranes of 15, 25 and 50-ton capacity, of 10 - 12 and 25-ton cranes on pneumatic-tire wheels, and of 3 - 5 ton automotive cranes; there are only very few 10-ton automotive cranes. A great number of these cranes are not fit for construction work on account of their booms being too short, or their design being obsolete. For lifting structural loads elevators are mostly in use. There are about as many elevators available in the USSR as there are

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tower cranes, which is abnormal. - The cost of keeping 1.5 - 10 ton cranes in repair represents 25 - 55% of the machine cost per shift. This excessively high maintenance cost is due to wrong design of cranes, excessive wear of parts, poor lubrication system, nonstandardized parts and units and lack of spare parts. Electric equipment is of poor quality and carelessly assembled, the same applies to Diesel engines, to mechanisms, cables, friction material and ball bearings. Some of the equipment employed is outmoded, if not obsolete, which is also true for the tires. The authors come to the conclusion that the existing stock of cranes is not meeting the requirements of the building trade in regard to quality, technical characteristics, types and capacities. The present volume of scientific research work in the domain of cranes and elevators does not correspond with the actual problems in the building trade. The Head Institute НИИОМТП АС и А (НИИ ОМТП АС & А) of the USSR which is in charge of investigating these problems is understaffed and has not the necessary facilities to conduct experiments and research work and to work out designs. Other existing institutes turn out inadequate work and often duplicate themselves. Consequently up to now there does not exist a uniform method of designing, nor technical conditions and norms for designing cranes and elevators, nor standard series of types of boom cranes and elevators composed of standard units. In addition to working out new designs of cranes, due attention should be paid to proper utilization of the existing

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stock of cranes, especially in view of the necessity of having these modernized. In this connection NIIOMTP proposes 2 variants of modernization, applying to the majority of existing tower cranes of the type СБК-1 (SBK-1). The choice between the two variants depends upon the capacity of each building concern in question, a certain number of contractors have already taken up modernization work on SBK-1 cranes with a view to increase their lifting capacity to 4 - 5 tons. The first variant maintains the structural design of the crane SBK, in changing only a few units, whereas the second variant radically changes the design of the SBK-1, giving it greater mobility, speed and power. The main reason of the unsatisfactory situation prevailing in developing the kind of cranes and elevators most needed in the building trade, is to be found in the absence of a scientific research center for investigating new progressive designs of cranes and elevators. It is also abnormal that 95% of all plants are situated in the European part of the USSR; 3 plants are only located in Siberia and none in the Far East. There are at present 100 models of different tower cranes in use. In addition to new types of cranes a number of old obsolete models are still being produced. The plans for the production of new cranes provide for a ratio between tower cranes and boom cranes of 4 : 1. During the period 1959 - 1965 there should be produced 5,000 boom cranes of 10 - 15 ton capacity and 2,000 boom cranes of 20 - 60 ton capacity. The power-

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ful caterpillar cranes having a lifting capacity of 50 - 75 tons supplied by the Voronezh Excavator Plant, and the 75-ton model of the Uralmashzavod Plant should have all the technical characteristics of a crane, although being developed from an excavator. The supply of Dieselhydraulic turbo-transformer 10 - 15 ton cranes on pneumatic tires and of 40 - 60 ton cranes intended for building purpose, started to be produced by the Odessa Plant of Heavy Crane Building, should be speeded up; the same applies to the project of 60-ton cranes on pneumatic tires. For the next few years the emphasis in house building lies on 4 - 5 story apartment houses, made from prefabricated large panels, weighing 1.5 - 5 tons. Development work will also continue on such structural elements as block rooms and block apartments, weighing from 5 to 25 tons. In the construction of hydroelectric power plants and heat and power plants it is proposed to use structural elements weighing from 20 - 40 tons, some reaching even 75 tons. These requirements determine the technical characteristics for the cranes to be used in regard to capacity (1.5 - 5 tons), reach of hook (10 - 20 m), height of lift (22 - 32m) - for building of 3 - 5 story houses. For structural elements exceeding 5 tons, such as are used for industrial buildings, cranes with a lifting capacity of 50, 60, 75 - 80 and even 100 tons capacity are required, mounted on tires or caterpillars. The boom length must be 40 - 80 m with an extension from 10 - 30 m, made of tubes or

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of light metal. Cranes should be able to move while carrying a load over normal ground on sites permitting a pressure of 2 kg/cm^2 . The driving gear should permit independent operation as well as combined operations of two mechanisms. A modern crane should provide for the driving of mechanisms from a built-in power installation with the possibility of taking power feed from an outside a - c source; the cabin should be insulated, heated and ventilated; cranes should have a multi-motor or hydraulic drive, interchangeable booms and extensions and quickly removable supports. - Elevators should be adjustable, self-propelled, equipped with electric drive or gasoline engines; they should easily be mounted and dismantled. Tests carried out by NIOMTP showed that for the assembly of prefabricated 5-story apartment houses pneumatic tire and caterpillar cranes are the most economical ones. For the assembly of houses made from room and apartment blocks weighing 10 - 25 tons there are special gantry cranes on rails as produced by Mechanical Repair Plant of Glavmosstroy. There are 1 table and 3 figures.

Card 5/5

ZAMYATIN, A.S.; POLYAKOV, V.I.

Introduction of electrovibrating machines at the Alchevsk Sintering
Plant. Obog. rud 5 no.6:54-59 '60. (MIRA 14:8)
(Voroshilovsk--Sintering--Equipment and supplies)

IVANOV, V.A., inzh.; POLYAKOV, V.I., kand.tekhn.nauk

What kind of cranes do builders need. Mekh.stroi. 17 no.3:
3-8 Mr '60. (MIRA 13:6)

(Cranes, derricks, etc.)

MEYNERT, V.A., inzh.; POLYAKOV, V.I., kand. tekhn. nauk, nauchnyy red.;
CHEKHOVSKAYA, T.P., red. izd-va; KASIMOV, D.Ya., tekhn. red.

[Operation of motor cranes] Rabota na avtomobil'nykh kranakh.
Moskva, Gos. izd-vo lit-ry po stroit., arkh. i stroit. materialam, 1961. 159 p.
(MIRA 15:2)

1. Russia (1917- R.S.F.S.R.) Glavnoye upravleniye po montazhu
tekhnologicheskogo oborudovaniya i proizvodstva montazhnykh rabot.
(Cranes, derricks, etc.)

KHLUSOV, Andrey Yefstaf'yevich; MIKHIN, A.A., dots., retsentsent; POLYAKOV, V.I., kand. tekhn. nauk, retsentsent; FADEYEV, I.Ye., inzh., red.; DUBASOV, A.A., red. izd-va; TIKHANOV, A.Ya., tekhn. red.

[Hoisting and conveying equipment of plants manufacturing structural parts] Gruzopod'emnoe i transportnoe oborudovanie zavodov stroitel'nykh detalei. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 356 p.

(Hoisting machinery)

(Conveying machinery)

(MIRA 14:10)

ASTAKHOV, A.I., inzh.; POLYAKOV, V.I., kand. tekhn. nauk, nauchnyy red.
TABUNINA, M.A., red. izd-va; OSENKO, L.M., tekhn. red.

[Operating crawler cranes] Rabota na gusenichnykh kranakh. Moskva,
Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit. materialam, 1961.
154 p. (MIRA 14:12)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii,
mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
(Cranes, derricks, etc.)

KHLUSOV, Andrey Yefstaf'yevich; MAKHIN, A.A., dots., retsenzent;
POLYAKOV, V.I., kand. tekhn. nauk, retsenzent; FADEYEV,
I.Ye., inzh., red.; DUBASOV, A.A., red. izd-va; TIKHANOV,
A.Ya., tekhn. red.

[Load-lifting and conveying equipment for plants manufactur-
ing construction elements] Gruzopod"emnoe i transportnoe
oborudovanie zavodov stroitel'nykh detalei. Moskva, Gos.
nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1961. 356 p.
(MIRA 15:3)

(Conveying machinery) (Hoisting machinery)

POLYAKOV, V.I., kand.tekhn.nauk

Eliminate structural shortcomings in building cranes. Bezop.truda
v prom. 5 no.12:12-14 D '61. (MIRA 15:1)
(Cranes, derricks, etc.)

POLYAKOV, V.I., kand.tekh.nauk

East German, Czechoslovakian, and Polish construction cranes. Mekh.
stroil. 18 no.4:29-31 Ap '61. (MIRA 14:6)
(Europe, Eastern—Cranes, derricks, etc.)

IVYANSKIY, G.B., kand. tekhn. nauk; POLYAKOV, V.I., kand. tekhn. nauk;
RAYPENBERG, S.M., inzh.; CHEREPAKHIN, N.V., inzh.;
PROSKURNINA, V.P., red.; TRUBIN, V.A., glav. red.; SOSHI',
A.V., zam. glav. red.; GRINEVICH, G.P., red.; YEPIFANOV, S.P.,
red.; ONUFRIYEV, I.A., red.; KHOKHLOV, B.A., red.; ZIMIN, P.A.,
red.; PEREVAIYUK, M.V., red. izd-va; NAUMOVA, G.D., tekhn. red.

[Erection of completely precast apartment houses] Montazh polno-
sbornykh zhilykh zdaniy; spravochnoe posobie. Pod red. V.P.
Proskurnina. Moskva, Gosstroizdat, 1962. 94 p.

(MIRA 15:11)
1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organi-
zatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
(Apartment houses) (Precast concrete construction)

POLYAKOV, V.I., kand.tekhn.nauk

Safety measures in erecting, dismounting and transporting tower
cranes. Bezop.truda v prom. 6 no.3:13-16 Mr '62. (MIRA 15:3)
(Cranes, derricks, etc.--Safety measures)

MALYSHEV, G.I.; POLYAKOV, V.I.

Power losses in the idle running of electric motors on vibration machines.

Obog. rud 7 no.4:39-41 '62.

(MIRA 16:4)

(Vibrators--Electric driving)

AL'PEROVICH, A.I., inzh.; POLYAKOV, V.I., kand.tekhn.nauk

Modernization of the SBK-1 tower crane. Mekh. stroi. 19 no.6:9-11
Je '62. (MIRA 17:2)

POLYAKOV, V.I., kand. tekhn. nauk; CHERNOV, A.N., inzh.

The KB-60 tower crane. Mekh. stroi. 19 no.8:25-26 Ag '62.
(MIRA 16:7)
(Cranes, Derricks, Etc.)

ATAYEV, Sergey Sergeyevich, kand. tekhn.nauk, dots.; POLYAKOV,
Vladimir Ivanovich; AL'PEROVICH, Arkadiy II'ICH; KASPER, M.,
red.; BELEN'KAYA, I., tekhn. red.

[Mechanizing the assembly of large-panel apartment houses]
Mekhanizatsiya montazha zhilykh zdaniy iz krupnykh sbornykh
elementov. Minsk, Gosizdat BSSR, 1963. 194 p.

(Apartment houses)

(MIRA 16:9)

POLYAKOV, Vladimir Ivanovich, kand. tekhn. nauk; AL'PEROVICH, A
Arkadiy Il'ich, inzh.; KOBISHCHANOV, V.N., inzh., red.

[The PEK-5 tower pneumatic-wheel crane with a lifting
capacity of 5 tons] Bashennyi pnevmokolesnyi kran PEK-5 gruzo-
pod"emnost'iu 5 t. Moskva, Gosstroizdat, 1963. 24 p.

(MIRA 16:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut orga-
nizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
 2. Rukovoditel' laboratorii tipazha stroitel'nykh i dorozhnykh
mashin Nauchno-issledovatel'skogo instituta organizatsii me-
khanizatsii i tekhnicheskoy pomoshchi stroitel'stvu (for
Polyakov). 3. Spetsialist laboratorii tipazha stroitel'nykh
i dorozhnykh mashin Nauchno-issledovatel'skogo instituta
organizatsii mekhanizatsii i tekhnicheskoy pomoshchi stroitel'-
stvu (for Al'perovich).
- (Cranes, derricks, etc.)

YEPIFANOV, Semen Pavlovich, kand. tekhn. nauk; POLYAKOV, V.I.,
kand. tekhn.nauk; AL'PEROVICH, A.I., inzh.; AIMIN, P.A.,
nauchn. red.; TELINGATER, L.A., red.; BARANOVA, N.N.,
tekhn. red.

[Operator of tower cranes] Mashinist bashennykh kranov. Izd.3.,
ispr. 1 dop. Moskva, Proftekhizdat, 1963. 517 p.

(Cranes, derricks, etc.)

(MIRA 16:10)

KIMEL', L.R.; PANCHENKI, A.M.; POLYAKOV, V.I.; TERENT'YEV, V.P.

Experimental study of the distribution function of monodirectional point sources of γ -quanta with initial energies of 0.661 and 1.25 Mev. in concrete, aluminum, iron, and lead. Vop. doz. i zashch. ot izluch. no.2:28-39 '63.
(MIRA 17:3)

POLYAKOV, V.I., kand.tekh.nauk; AL'PEROVICH, A.I., inzh.

Modernization of the SBK-1 tower cranes. Bezop.truda v prom. 7 no.7:
26-29 JI '63. (MIRA 16:9)

1. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i
tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i ar-
khitektury SSSR.

(Cranes, derricks, etc.—Technological innovations)

ACC NR: AP7002596 (A,N) SOURCE CODE: UR/0413/66/000/023/0102/0102

INVENTOR: Soms, M.K.; Krishtul, I.B.; Polyakov, V.I.; Dmitriyev, V.N.;
Gradetskiy, V.G.

ORG: none

TITLE: Pneumatic time relay. Class 42, No. 189234 [announced by All-
union Scientific Research Institute of Medical Instruments and
Equipment (Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh
instrumentov i oborudovaniya); Institute of Automation and Telemechanics
AN SSSR (institut avtomatiki i telemekhaniki, AN SSSR)]
(TEKHNIKOY, KIBERNETIKI)

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no.
23, 1966, 102

TOPIC TAGS: pneumatic device, pneumatic control, automatic pneumatic
control, *TIME RELAY, TIME SWITCH*

ABSTRACT: An Author Certificate has been issued for the pneumatic time relay shown
in Fig. 1. To provide independent fine control of switching time the
receiving nozzle of the jet unit is connected through uncontrolled re-
sistance to the dead-end chamber, one end of which forms a diaphragm.

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UDC: 681.118.5-525

ACC NR: AP7002596

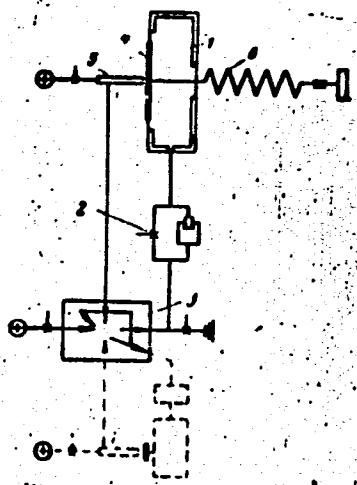


Fig. 1. Pneumatic time relay

1 - Dead-end chamber; 2 - uncontrolled resistance; 3 - jet unit; 4 - flapper; 5 - nozzle; 6 - controlled spring.

This diaphragm acts as the flapper of the switching unit and is coupled with a controlling spring. The switching unit nozzle is connected to the control line of the jet-unit.

[WP]

SUB CODE: 13/ SUBM DATE: 14Dec65/ ATD PRESS: 5114

Card 2/2

POLYAKOV, V.I., kand. tekhn. nauk

Technical specifications for jib cranes. Stroil. i dor. mash. 9
no.2:3-11 F 164. (MIRA 18:7)

POLYAKOV, V.I., kand.tekhn.nauk

What should be the design of self-propelled jib cranes. Stroi. i
dor. mash. 9 no.7:6-10 JI '64.

(MIRA 18:3)

POLYAKOV, V.I.

Effect of alcohol on carbohydrate function of the liver in a galactose
test. Terap.arkh. 31 no.8:67-70 Ag '59. (MIRA 12:11)

1. Iz kafedry gosptal'noy terapii No.2 (nach. - prof. Z.M. Volynskiy)
Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.
(LIVER FUNCTION TESTS)
(ALCOHOL, ETHYL)

SPASSKIY, Vladislav Akimovich, polkovnik med. sluzhby, prof.;
ARKAYEV, Viktor Alekseyevich, polkovnik, med. sluzhby,
dots.; ~~Prinimali uchastiye:~~ ANTIPIN, G.M., podpolkovnik
med. sluzhby; POLYAKOV, V.I., podpolkovnik med. sluzhby;
PAKHOMOV, V.I., polkovnik med. sluzhby, red.; CHAPAYEVA,
R.I., tekhn. red.

[Military hygiene) Voennaia gigiena. Izd. 2., perer. i dop.
Moskva, Voenizdat, 1962. 167 p. (MIRA 15:8)
(Military hygiene)

SMOLIN, V.N.; POLYAKOV, V.K.; YESIKOV, V.I.

Critical heat transfer in a steam-generating tube. Atom. energ.
13 no.4:360-364 0 '62. (MIRA 15:9)

(Nuclear reactors) (Cooling)

ACCESSION NR: AP4036525

S/0089/64/016/005/0417/0423

AUTHOR: Smolin, V. N.; Polyakov, V. K.; Yesikov, V. I.

TITLE: Experimental investigation of critical heat transfer

SOURCE: Atomnaya energiya, v. 16, no. 5, 1964, 417-423

TOPIC TAGS: critical heat transfer, steam generating pipe, heat transfer criteria, forced circulation, heat transfer medium

ABSTRACT: This work was undertaken due to the fact that while different estimates of critical flows of subcooled liquids or water and steam mixture with low steam content are in good agreement, there is a general disagreement concerning data on flows with higher steam content even under the same experimental conditions. There is also a discrepancy among different studies concerning the qualitative influence of various factors (steam content, mass velocity, tube diameter) on critical heat transfer, which is probably due to the difference in experimental methods. The investigations covered pipes with 5-16 mm i.d. under pressures (49 to $\cdot 196$) $\cdot 10^5$ n/m² and mass velocities of 500-8000 kg/m²sec. Formulas are proposed for critical heat flow. Data on critical heat transfer in vertical steam

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ACCESSION NR: AP4036525

generating pipes with forced circulation of the heat transfer medium were given. It was found that the degree of bursting hazard for steam generating pipes of a given material is determined by the temperature jump occurring at the critical point. The experimental data have been translated into criterial forms, according to the following general lines: (1) the number of steam generating centers on the surface is the same as with volume boiling (G. N. Kruzhilin criterion is suggested and its formula given), (2) hydrodynamic characteristics of the flow are ruled by Reynolds criterion for mixtures, and (3) pressure influence is described by Prandtl criterion. Orig. art. has: 5 figures, 11 formulas, no tables.

ASSOCIATION: None

SUBMITTED: 27Jun63

DATE ACQ: 03Jun64

ENCL: 00

SUB CODE: TD

NO REF SOV: 008

OTHER: 001

Card 2/2

SMOLIN, V.N.; POLYAKOV, V.K.; YESIKOV, V.I.; SHUINOV, Yu.N.

Test stand study of the starting conditions for the I.V.
Kurchatov Beloyarsk Nuclear Power Plant. Atom. energ. 19
no.3:261-268 S '65. (MIRA 18:9)

SMOLIN, V.N.; POLYAKOV, V.K.; YESIKOV, V.I.

Experimental study of heat transfer in critical boiling.
Atom.energ. 16 no. 5:417-423 My '64. (MIRA 17:5)

L 2228-66 ENT(m)/EPF(n)-2/T/-DM
ACCESSION NR: AP5023767

UR/0089/65/019/003/0261/0268
621.039.514.23

AUTHOR: S. N. V. N.; Polyakov, V. K.; Yesikov, V. I.; Shuinov, Yu. N. 25
B

TITLE: Study on a stand of the start-up conditions of the I. V. Kurchatov atomic power plant in Beloyarsk

SOURCE: ¹⁹Atomnaya energiya, v. 19, no.3, 1965, 261-268

TOPIC TAGS: atomic energy plant equipment, nuclear power plant, water cooled nuclear reactor, boiling water reactor

ABSTRACT: The hydrodynamic stability of the flow rate of the heat carrier in the channels under boiling conditions was studied, and the switching of heating channels from water-cooling to vapor-cooling operation followed by the attainment of the rating is discussed. Experimental thermotechnical stands were constructed the basic configurations of which corresponded to the technological layouts of the first and second units of the electric power station. On the basis of the data obtained from the experiments performed, operational conditions providing for a stable flow rate and reliable cooling in the evaporating and superheating
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ACCESSION NR: AP5023767

channels during the start-up period and under rated conditions were selected. It is shown that the method of gradual replacement of water in the superheating channels by a steam-water mixture and then by steam insures an adequate operation of the channels and of the entire system during the start-up period. Orig. art. has: 7 figures.

ASSOCIATION: None


SUBMITTED: 18Sep64

ENCL: 00

SUB CODE: NP

NO REF SOV: 005

OTHER: 003

Card 2/2 

41398

S/089/62/013/004/005/011
B102/B108

2656
AUTHORS:

Smolin, V. N., Polyakov, V. K., Yesikov, V. I.

TITLE:

Heat transfer crisis of a steam-generating tube

PERIODICAL:

Atomnaya energiya, v. 13, no. 4, 1962, 360 - 364

TEXT: The heat transfer crisis was investigated using a vertical tube made of 1X18H9T (1Kh18H9T) stainless steel, 1 mm thick and of 10 mm diameter. The tube was filled with chemically desalted water and was connected into a circulation. The rate of flow W_g , amounting to 850-7000 kg/m²-sec, was regulated by a valve 20 m away from the experimental portion. The water was heated electrically. At a pressure of 150 at, the thermal load q amounted to $(0.46 - 1.65) \cdot 10^6$ kcal/m².hr. The temperature distribution along the experimental tube was measured with chromel-copel thermocouples which were arranged as shown in Fig. 1. The temperature of the water at the inlet to the heater, and the temperature of the water-steam mixture at the outlet of the tube, were measured with resistance thermometers. These were connected to appropriate secondary instruments for determining the

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3/089/62/013/004/005/011
B102/B108

Heat transfer crisis ...

moment at which the crisis set in and for cutting off the supply of heat if the temperature of the tube wall then exceeded 600°C . Under a fixed thermal load the flow rate was varied and the experiment broken off at whatever flow rate caused the temperature jump on the tube wall to reach $10-15^{\circ}\text{C}$ at the moment of crisis. The dependence of the steam content on the critical rate of flow was measured for different values of q . The resulting family of curves showed a minimum between 2000 and 3000 $\text{kg/m}^2\cdot\text{sec}$. As q increased, the curves flattened and lay deeper, the minimum being shifted towards higher values of W_g . The abrupt fluctuations in the wall temperature, indicating the approach of the crisis, were plotted under various boiling conditions. The trend of these graphs reveals the course of heat transfer in each individual case and makes it possible to draw general conclusions as to the development of the crisis; for example, the existence of a limit of W_g is thereby confirmed. When W_{lim} is reached, the effect of the flow rate on the critical thermal load is reversed. When $W_g < W_{\text{lim}}$, the effects of translational motion outweigh those of the rotational motion, and when $W_g > W_{\text{lim}}$ the opposite is true. The critical thermal load is

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S/089/62/013/004/005/011
B102/B108

Heat transfer crisis...

found from two equations of the form $y = ax^m z^n$, the range of application being given by $K_{lim} = \frac{1-x}{W_g} = 0.345 \cdot 10^{-3}$. If $\frac{1-x}{W_g} > K_{lim}$, then q_{cr}

$= 9.1 \cdot 10^8 \frac{(1-x)^{3.2}}{W_g^{0.8}}$ kcal/m²·hr, and if $\frac{1-x}{W_g} \leq K_{lim}$, then

$q_{cr} = 1.10^4 (1-\beta)^{1.11} \cdot W_g^{0.7}$ kcal/m²·hr, where β is the steam content per unit volume. The two formulas hold for pressures of 150 at in tubes of 8 mm bore within the range of flow rates under consideration and with a steam content of not more than 50% by weight. The error of the formulas is $\pm 30\%$. There are 4 figures.

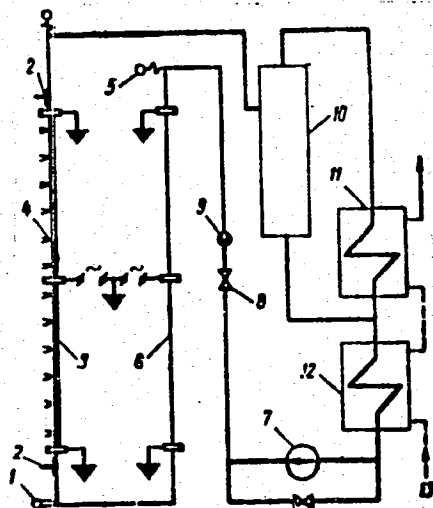
SUBMITTED: June 10, 1961

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Heat transfer crisis...

S/089/62/013/004/005/011
B102/B108

Fig. 1



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L 04266-67 EWT(1) GW

ACC NR: AP6013323

SOURCE CODE: UR/0413/66/000/008/0150/0150

AUTHORS: Golovanov, A. M.; Zolenskiy, V. Yu.; Polyakov, V. L.; Troitskiy, B. R. 32

ORG: none B

TITLE: A method for consolidating loess soils. Class 84, No. 181007

SOURCE: Izobretoniya, promyshlennyye obratzay, tovarnyye znaki, no. 8, 1966, 150

TOPIC TAGS: soil, soil property, soil mechanics, soil consolidation

ABSTRACT: This Author Certificate presents a method for consolidating loess soils by forcing into them (through injectors) a silicate solution fed by compressed air. To increase the radius of the consolidation zone, to shorten the period of injection, and to diminish the amount of the solution, forcing of the latter into the soil is conducted under an air pressure which is uniformly increased in the course of the process. The amount of the solution is held to 0--80 liters/minute.

SUB CODE: 08 / SUBM DATE: 21Dec64

Card 1/1 fv

UDC: 624.138.24

POLIAKOV, V. M.

Poliakov, V. M. "Magnetic Survey of Donbass." Report made at the First All-Union Conference on Mine Surveying, Leningrad, 1932, Trudy Marksheiderskoi Komissii, Mosccw-Groznyi-Novsibirsk, No. 2, 1934, pp. 67-77.

POLYAKOV, V. M.

Mine Surveying

Orienting an underground survey on a vertical shaft by using two restricted plumb lines. (Trudy) VNIMI 22, 1950.

9. Monthly List of Russian Accessions, Library of Congress, October 195²~~0~~, Uncl.

POLYAKOV, V. M.

Polyakov, V. M. "On the dimensions of mineral barriers in the Donbass", Trudy Vsesoyuz. nauch.-issled. marksheyder. in-ta VNIIT, Collection 15, 1948, p. 63-85.

SO: U-2888, 12 Feb. 53, (Letopis' Zhurnal 'nykh Statey, No. 2, 1949).

POLYAKOV V.M.

ATD P - 882

Subject : USSR/Engineering

Card 1/1 Pub. 93 - 9/12

Author : Polyakov, V. M., Engineer

Title : Reconstruction of the crane "Pioner-2"

Periodical : Sbor. mat. o nov. tekhn. v stroit., 6, 23-24, 1954

Abstract : For the steel structure assembly of the Barnaul Cotton Textile Kombinat weaving mill a reconstructed crane of the type "Pioner-2" was used. The crane's beam was extended to 9 m with a lifting capacity up to 950 kgr. Diagram.

Institution : None

Submitted : No date

Polynkov, V.M.

1243. SCOPE AND PRACTICAL VALUE OF PRELIMINARY CALCULATIONS OF
MOVEMENTS OF EARTH'S SURFACE (OVER MINES). Polynkov, V.M. (Ugol (Coal),
Mar. 1954, 21, 22). No reliable method for preliminary calculations exists
as yet. Recourse must be made to records of previous experience under
analogous conditions. Problems for future research are indicated. (U). 2nd

POLYAKOV, V. M.

1. DEMENEV, N. V.; BUYNOV, N. N.; POLYAKOV, V. M.
2. USSR (600)
4. Salts, Double
7. Structure of the double salt of titanium and potassium sulfates. Dokl. AN SSSR 87 no. 6, 1952.
9. Monthly Lists of Russian Accessions, Library of Congress, March 1953, Unclassified.

POLYAKOV, V., inzhener.

Improving the design of mine car wheels. Mast. ugl.6 no.2:21
P '57. (MIRA 10:4)
(Wheels)

POLYAKOV, V.M.

POLYAKOV, V.M., gornyy inzhener.

IX. Field of application and practical value of calculating earth surface displacement in advance. Ugol' 29 no.3:21-22 Mr '54.

(MLRA 7:3)

1. Kombinat Stalinugol'.

(Earth movements)

(Coal mines and mining)

POLYAKOV, V.M.
TROFIMOV, A.S.; POLYAKOV, V.M.

New method of removing used sand in foundries. Lit. proizv. no.1:14-
16 Ja '58. (MIRA 11:2)

(Sand, Foundry)

POLYAKOV, V. M.

37-11-16/18

AUTHOR: Polyakov, V. M.
TITLE: Evaluation of Temperature and Density of Gas at the Height of the Ionospheric Layer (Ob otsenke temperatury i plotnosti gaza na vysote ionosfernogo sloya)
PERIODICAL: Trudy Nauchno-issledovatel'skogo instituta zemnogo magnetizma, 1957, Nr 11(21), pp. 184-189 (USSR)
ABSTRACT: The article discusses accumulated temperature data and standard relationships between temperature and altitude; the reliability of observations above 120 km is questioned. Variable temperature conditions in the upper ionosphere (zone F) and in layer E are described and the possibility of a temperature minimum between them is suggested. Efforts to determine the density of particles were not entirely successful. The problem of colliding particles and distribution of electrons in a gas is analyzed, and better techniques of exploration are suggested. There are 1 figure and 13 references, 9 of which are USSR, and 4 English.
AVAILABLE: Library of Congress
Card 1/1

84588

S/169/60/000/009/006/007
A003/A001

9:9100(210,1041,1846)

Translation from: Referativnyy zhurnal, Geofizika, 1960, No.9, p.203, # 11639

AUTHOR: Polyakov, V.M.

TITLE: On Determining the ^{✓✓} Ionization-Recombination Constants of the F2-Layer ✓

PERIODICAL: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, 1959, No. 37, pp. 29-48

TEXT: When describing the processes of origination and variation of the ionization state of an arbitrary region of the ionosphere, and in particular of the F2-layer, we must use the equations of a simple layer, though it is well known that these equations do not describe in full measure the ionization dynamics of this layer. The necessity of using again and again the equations of a simple layer results from the elementary considerations that the processes taken into account by these equations must take place without fail at the origination of ions, and in particular, at the origination of any of the known ionospheric layers. Therefore, when we encounter a discrepancy between the phenomena observed

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84588

S/169/60/000/009/006/007
A005/A001

On Determining the Ionization-Recombination Constants of the F2-Layer

and the results from the simple layer theory, we should not speak on the inapplicability of the given equations but on their limitation. In particular, the main limitation of the equations of the simple layer is the fact that these equations do not take into account the dynamics of the gaseous medium in both molecular processes (diffusion, heat conductance) and macro-processes caused by the various factors of thermodynamic and electrodynamic nature. Therefore, it is natural that it makes sense to take as a basic the equations of the simple layer and to supplement them in correspondence with the actual problem under consideration in making each new attempt of more exact description of dynamics of the F region ionization.

Author's summary

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

89771

S/169/61/000/002/025/039
AC05/AC01

9.9110 (AKO 1041, 1046)

Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 2, p. 41, # 20291

AUTHOR: Polyakov, V. M.

TITLE: On the Part of Collisions in the Dynamics of Ionization of the
Ionosphere F-Region

PERIODICAL: "Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te", 1959, No. 37, pp.
68-84

TEXT: The essential difference in the effective cross sections of ions and neutral particles colliding with electrons leads to a strong dependence of the effective number of collisions ν on the ionization state at the levels of the F2-layer of the ionosphere. Consequently, the value of ν depends in a complicated manner on time and altitude. Two special cases of this dependence are analyzed: the diurnal variations of ν at the maximum of the F2-layer and the spatial distribution of ν for a given initial distribution of ionization. The analysis of the former dependence led, at certain approximations, to correlations which make it possible to estimate the temperature and concentration of neutral particles from the diurnal courses of ν , effective recombination coefficient α , and electron

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S/169/61/000/002/025/039
A005/A001

On the Part of Collisions in the Dynamics of Ionization of the Ionosphere F-Region

density N_e . The dependence of α on the temperature ($\alpha = CT^n$) and the linear increase of T with the altitude were presumed. The cases are considered when the ionization state is far from and near the saturation. In the second part of the work, the effect of ionization state on the conditions of electron diffusion is considered in connection with the difference in the length of the free path, which depends on ν . For a sufficiently great part of the ions in the collision processes, the coefficient of ambipolar diffusion sharply increases below the maximum of the layer. The analysis of the possible part of the diffusion in this case points out, for an initial distribution N_e satisfying the simple layer, the possibility of formation of a second maximum of the effective ionization magnitude located below the maximum of the electron density of the F2-layer. It is shown that, for concentrations of the neutral particles of about 10^8 cm^{-3} and $T \sim 1,000^\circ \text{C}$, the formation of the F1-layer is possible owing to the electron diffusion. The calculations agree well with the actual data.

L. Shchepkin

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

POLYAKOV, V.M.; SHCHEPKIN, L.A.

Some characteristics of the behavior of F2 and F1 ionospheric
layers over Irkutsk. Geomag. i aer. 1 no.3:374-378 My-Je '61.
(MIRA 14:9)

1. Irkutskiy gosudarstvennyy universitet, kafedra radiofiziki.
(Ionosphere)

S/169/62/000/005/079/093
D228/D307

9.9/00
AUTHORS:

Kazimirovskiy, E. S., Kokourov, V. D., and Polyakov, V. M.

TITLE:

Some results of measuring the absorption of radio-waves in the ionosphere according to observations at Irkutsk

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 5, 1962, 24-25, abstract 5G176 (V sb. Ionosfern. issledovaniya, no.6, AN SSSR, 1961, 52-57)

TEXT: The procedure and the results are described for the measurement of radiowave absorption in the ionosphere in observations at Irkutsk that were started in 1950. The frequencies of collisions of electrons with heavy particles (ν) was estimated from measurements in the F2-layer (March-July 1950 and October 1953-June 1954). The results are adduced on graphs of the diurnal variations of ν . These data were used to determine the gas temperature (T) from the formula:

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S/169/62/000/005/079/093
D228/D307

Some results of ...

$$\bar{\sigma} [\Delta N_e / N_e - \Delta \bar{\sigma} / \bar{\sigma}] / \Delta \bar{\sigma} = \psi(T, h, N_e)$$

(see RZhGeofiz, no. 9, 1956, 27402). The results of absorption measurements on the frequency 2,2 Mc/s during the IGY are described. The seasonal variation of the median absorption magnitude (L) on this frequency could not be successfully ascertained, since on these frequencies the absorption is mainly governed by the solar activity. A correlation, which is weaker in winter months, exists between L and f_{min} . Absorption measurements at PMA(RMD) allowed the absorption's diurnal variation, which has a high correlation with f_{min} and the sun's zenith angle, to be studied. [Abstracter's note: Depending on the meaning of "RMD", the preceding word could also be rendered as "on" or "in".] The work's results confirm that f_{min} can serve as a sufficiently reliable criterion for absorption in a non-deflecting region. For the comparability of the results of the network of stations it is necessary to measure f_{min}

Card 2/3

Some results of ...

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D228/D307

with invariable and standard equipment parameters. [Abstracter's
note: Complete translation.]

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Card 3/3

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S/194/62/000/006/161/232
D201/D308

AUTHORS:

Kazimirovskiy, E.S., Kokourov, V.D., and Polyakov, V.
M.

TITLE:

Some results of measurements of radiowave ionosphere
absorption in Irkutsk

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika,
no. 6, 1962, 27-28, abstract 6Zh185 (V sb. Ionosfern.
issledovaniya, no. 6, M., AN SSSR, 1961, 52-57)

TEXT: The authors communicate the results of measurements of ra-
diowave ionosphere absorption carried out in Irkutsk between March
- June 1950 and October 1953 - June 1954. The absorption was measu-
red at frequencies of 2.2 and 2.6 mc/s by means of pulse probing
with a specially built experimental measuring equipment. For night-
time the first and second reflections were used for the purpose of
analysis, for the day-time the first reflections using the perma-
nent equipment. The authors calculate errors due to the underesti-
mation of the coefficient of reflection of radiowaves by the Earth
and to the non-deflective absorption in lower layers. From the ob-
Card 1/2

Some results of measurements of ...

S/194/62/000/006/161/232
D201/D308

tained data on the number of collisions, the temperature of the F_2 layer of the ionosphere is calculated. It is found that the effective number of collisions is controlled by diurnal ionization change to a greater extent than by temperature variations, as used to be supposed earlier. The analysis of seasonal variations of absorption has shown good correlation between absorption and the index of solar activity. The diurnal absorption change exhibits great similarity with the behavior of f_{min} and $\cos \chi$. [Abstracter's note: Complete translation.]

Card 2/2

S/058/62/000/006/113/136
A062/A101

9.9/00

AUTHORS: Kazimirovskiy, E. S., Kokourov, V. D., Polyakov, V. M.

TITLE: Some results of measurements of radio wave absorption in the ionosphere effected at Irkutsk

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 27 - 28, abstract 6Zh185
(V sb. "Ionosfern. issledovaniya. no. 6," Moscow, AN SSSR, 1961, 52 - 57, English summary)

TEXT: Results of measurements of radio wave absorption effected at Irkutsk from March to June 1950 and from October to June 1954 are reported. The absorption was measured on 2.2 and 2.6 Mc frequencies by the pulse probing method on a specially prepared experimental measuring installation. In the processing, use was made of reflections of first and second order for night time, and for day time - reflections of first order with use of the stationary installation. An evaluation is made of the errors due to underestimating the coefficient of the radio wave reflection from the Earth and to absorption without deflection in the lower regions. Average daily values, for one to two months, of the dependence of

Card 1/2

POZYAKOV, V.M.

Determining the electron recombination rate in the F2 layer from the diurnal variation of ionization. Geomag. i aer. 3 no.5:868-877 S-O '63. (MIRA 16:11)

1. Irkutskiy gosudarstvennyy universitet.

L 04586-67 EWT(1)/FCC GD/GW

ACC NR: AT6027209

SOURCE CODE: UR/0000/66/000/000/0003/0016

AUTHOR: Polyakov, V. M. (Candidate of physico-mathematical sciences)

ORG: none

TITLE: Characteristics of night and day ionization of the F sub 2 layer in winter in the middle latitudes

SOURCE: AN SSSR. Sibirskoye otdeleniye. Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln. Issledovaniya po geomagnetizmu i aeronomii (Studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 3-16

TOPIC TAGS: diurnal variation, atmospheric ionization, atmospheric diffusion

ABSTRACT: V. M. Polyakov [1] conducted a detailed analysis of temporal variation of the electron concentration N at the maximum in the layer or at a certain constant distance Z_0 , using the following equation

$$\frac{dN}{dt} = q(z, t) - L(z, t) + \Phi(z, t), \quad (1)$$

where $q(z, t)$ is the intensity of ion formation determined by the number of ionizations per unit volume per second, $L(z, t)$ is a function numerically equal to the number of neutralized electrons in a unit volume per second, and $\Phi(z, t)$ is the change of electron concentration associated with the transfer of electric charges primarily due to diffusion. A simplified

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L 04086-67

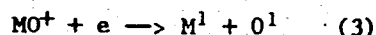
ACC NR: AT6027209

formula is derived for the function $q(z, t)$ using the present-day concepts of atmospheric models on the assumption that most of the absorption in the F-region is associated with atomic oxygen and molecular nitrogen.

In the analysis, it is assumed that free electrons and atomic ions are first neutralized in a reaction of the type



followed by dissociative recombination



The function $L(z, t)$ can be written as follows:

$$L(z, t) = \alpha [MO^+] N = KN = \alpha' N^0 \quad (4)$$

where α is the reaction rate coefficient and where $[MO^+]$ is the concentration of molecular ions. It is then shown that a change in the concentration of molecular ions associated with the variation of N is of the form of a diurnal wave with amplitude Q and a phase shift. Calculations performed show that the concentration of molecular ions in the atmosphere can vary significantly and that these variations do not necessarily coincide in phase with the variation of the electron concentration. This agrees with the experimental data.

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L 04686-67

ACC NR: AT6027209

The changes in electron concentration caused by diffusion are expressed by Ferraro's equation (V. C. A. Ferraro, Terr. Mag. Atmos. Elect. 50, 1945, p. 205; '51, 1946, p. 427). These rapid changes are due to the slow recombination rate and the diffusion of charges from the upper part of the F₂ layer.

The analysis conducted in the present paper [1] together with the analysis of data on diurnal variation of ionization in the F₂ layer at middle latitudes show that the slow rise of the layer during the first half and rapid descent during the second half of the night in the presence of only a small variation in the concentration on the maximum of the layer, is in agreement with the concept of residual ionization. A relatively rapid neutralization of electrons immediately after sundown disrupts the lower part of the layer by displacing the maximum upward, and is accompanied by a decrease in the electron concentration. A decrease in the neutralization rate during the second half of the night above 300 km, where dissociative recombination is relatively important, causes the layer to descend as a result of diffusion. The neutralization rate at this time is much smaller than during the first half of the night. Thus, the regular variations of the electron concentration in the maximum of the F₂ layer are determined primarily by the kinetics of ionization-recombination processes, while the distribution of electron concentration in respect to the altitude is controlled by diffusion. The author thanks L. A. Shchepkin for material used in this work. Orig. art. has: 2 tables, 26 formulas and 3 figures. [ATD PRESS: 5064F]

SUB CODE: 04 / SUBM DATE: 25Dec65 / ORIG REF: 010 / OTH REF: 015
Card 3/3 fv

ACC NR: AP6032689

SOURCE CODE: UR/0203/66/006/005/0858/0368

AUTHOR: Polyakov, V. M.; Shchukina, T. B.

ORG: Institute of Geomagnetism, the Ionosphere, and Radiowave Propagation, SO AN SSSR
(Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln, SO AN SSSR)

TITLE: Kinetics of ionization recombination processes in F2 layer of the ionosphere

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 5, 1966, 858-868

TOPIC TAGS: ionospheric physics, recombination coefficient, ion recombination, linear approximation, F layer

ABSTRACT: Kinetics of the ionization-recombination processes summarized by equations: $O^+ + M_2 \rightarrow MO^+ + M$ and $MO^+ + e \rightarrow M + O$ (where M and M_2 are atoms and molecules of a gas), which take place in the F2 layer of ionosphere, is investigated. A new method for determination of the parameters of the process by means of analog electronic computers is evaluated. Values for the effective coefficients for charge exchange and dissociation-recombination reactions in F2 layer are determined. It is suggested that the frequently encountered divergence between the values for recombination parameters that are laboratory-derived and theoretically calculated from elementary interactions between the particles, on one hand, and the values obtained from ionosphere measurements, on the other, is due to the temperature dependence of these parameters rather than to the inaccuracy of determination. It was established that the recombination

UDC: 550.388.2

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ACC NR: AP6032689

coefficient varies with altitude and time. While in using an altitude function it is more convenient to employ a linear approximation within the whole interval of the F2 layer altitudes, the time variations cannot be evaluated through the use of linear or square functions. Orig. art. has: 19 formulas, 3 tables, and 6 figures.

SUB CODE: 04, 09/ SUBM DATE: 05Nov65/ ORIG REF: 009/ OTH REF: 010

Card 2/2

L 38451-66 EWT(1)/FCC GW
ACC NR: AT6023724

SOURCE CODE: UR/2831/65/000/014/0013/0020

AUTHOR: Polyakov, V. M.; Shchepkin, L. A.

ORG: none

TITLE: Peculiarities of regular changes in ionization and structural parameters of the ionospheric F2 layer

SOURCE: AN SSSR. Mezhdunarodstvennyy geofizicheskiy komitet. V razdel programmy
MGG: Ionosfera. Sbornik statey, no. 14, 1965. Ionosfernyye issledovaniya, 13-20

TOPIC TAGS: ~~ion concentration, ionization, recombination, balance equation, electron concentration, ion concentration, ionospheric electron density, photochemical equilibrium, F layer, atmospheric ionization, atmospheric recombination, ionospheric electron density, atmospheric ion concentration~~

ABSTRACT: The change of ion concentration in the F2 layer can be considered to be a result of ionization and recombination processes in this layer. These processes are studied by the balance equation for electron concentration

$$d[e]/dt = q(t) - L \approx q_0 \phi(z, t) - L,$$

where q_0 is a constant; $\phi(z, t)$ is a function characterizing the change of atmospheric illumination; L is the term of recombination and it expresses the quantity of free electrons lost from a unit volume during one second. The recombination term L depends upon the form of electron recombination. Maximum formation of ions occurs at large

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zenithal distances of the Sun, and the electron density in the F2 layer attains the maximum value in the morning. Another maximum formation of electrons takes place in the F1 layer at small zenithal distances of the Sun. The electron concentration in the F2 layer was studied on the basis of data obtained from observations at Irkutsk, Tomsk, and Sverdlovsk. The intensity of ionization determined for an optical depth equal to one was represented graphically. The basic process in the F2 layer is the dissociative recombination of molecular ions with electrons. Atomic ions disappear during the exchange of charges with neutral molecules forming molecular ions. During rapid changes in electron concentration the photochemic equilibrium is disturbed. The speed of recombination is variable except in the summer, as experimental data show. In winter the concentration of molecular ions changes throughout the day. The F2 layer has one maximum of ion formations and electron concentration occurring when the Sun is in low positions above the horizon. This occurs during the winter and in the morning and evening. The main maximum of ion formation in the F1 layer occurs when the Sun is in a high position above the horizon. The F2 layer appears when there is a variable effective recombination coefficient. Orig. art. has: 4 figures and 13 formulas. [EG]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 006/ ATD PRESS: 5042

Card 2/2

L 33297-66 EMT(1)/ECG GW

ACC NR: AP6011704

SOURCE CODE: UR/0203/66/006/002/0341/0351

46
B

AUTHOR: Polyakov, V. M.

ORG: Irkutsk State University Im. A. A. Zhdanova (Irkutskiy gosudarstvennyy universitet)

TITLE: Diffusion of charged particles in the F region of the ionosphere at middle latitudes

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 2, 1966, 341-351

12

TOPIC TAGS: F layer, charged particle, ionosphere, particle distribution

ABSTRACT: The purpose of the present study was to elicit the form of the height profile of the distribution of electron density which is established under the effect of the vertical diffusion of electron-ion gas, to determine to what extent the observed distribution of the electron concentration in the vicinity of the maximum of the F2 layer deviates from diffusive equilibrium, and to reveal the structure of the diffusion flux in the F region. It is shown that the Chapman form of the electron concentration distribution in the upper part and maximum of the layer is close to diffusive equilibrium. Deviation from equilibrium causes transfer of charged particles from the upper half of the layer to the lower half so that close to the maximum of the F2 layer the divergence of the diffusion flux changes sign and therefore remains negligible. The rate of mutual diffusion of various kinds of positive ions within the electron-ion gas without disturbance of the neutrality of the plasma is estimated. The study

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UDC 550.388.2

L 33297-66

ACC NR: AP6011704

shows that autonomous diffusion of ions is extremely difficult. The coefficient of mutual diffusion of ions inside the electron-ion gas in the F region is at least by an order of magnitude less than the coefficient of ambipolar diffusion and strongly depends upon the degree of ionization of the gas. Therefore, during the day the mutual diffusion of ions is hampered and their distribution with height is established in conformity with photochemical processes. At night, owing to the decrease of relative ionization of the gas this diffusion again increases and its rate can be comparable with diffusion of the electron-ion gas. Therefore, at night a change in the ion composition with height under the effect of diffusion is possible. Orig. art. has: 24 formulas and 2 tables.

SUB CODE: 04 / SUBM DATE: 19Feb65 / ORIG REF: 010 / OTH REF: 035

Card

2/2

SKLYAROV, Yu.A.; POLYAKOV, V.M.; YERMILOV, G.P.

Photographic observations of minor planets and of Seki-Lines' comet
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17(13)

SOV/177-58-11-29/50

AUTHOR: Polyakov, V.P., Lieutenant-Colonel of the Medical
Corps, Candidate of Medical Sciences

TITLE: About the Diagnosis of Psychopathia

PERIODICAL: Voenno-meditsinskiy zhurnal, 1958, Nr 11, p 82
(USSR)

ABSTRACT: The author writes about the most frequent symptoms of psychopathia such as: affective recrudescence, pronounced kinetic and vegetative disturbances, tremor of hands and legs, stammer, growing pale or, on the contrary, hyperemia of the skin surfaces, tachy- (ty in cardia, constant kinetic unrest ab extra affect, difficult- falling asleep, extremely sensitive sleep, and increase of reflexes. The author stresses that the diagnosis of psychopathia must never be based on single affective recrudescence or right disturbances as single affective recrudescence may occur not only in psychopathia, but also in some other morbid

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in the medical characteristics. The individual approach to the military staff, and especially to soldiers who are suspected of being psychopathic, will help to reduce to a minimum the number of psychopathia disturbing military discipline in some cases.

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